Missouri Department of Natural Resources

PUBLIC NOTICE

DRAFT MISSOURI STATE OPERATING PERMIT

DATE: October 22, 2004

In accordance with the state Clean Water Law, Chapter 644, RSMo, Clean Water Commission regulation 10 CSR 20-6.010, and the federal Clean Water Act, the applicants listed herein have applied for authorization to either discharge to waters of the state or to operate a no-discharge wastewater treatment facility. The proposed permits for these operations are consistent with applicable water quality standards, effluent standards and/or treatment requirements or suitable timetables to meet these requirements (see 10 CSR 20-7.015 and 7.031). All permits will be issued for a period of five years, unless noted otherwise in the Public Notice for that discharge.

On the basis of preliminary staff review and the application of applicable standards and regulations, the Missouri Department of Natural Resources (MDNR), as administrative agent for the Missouri Clean Water Commission, proposes to issue a permit(s) subject to certain effluent limitations, schedules, and special conditions. The proposed determinations are tentative pending public comment.

Persons wishing to comment on the proposed permit conditions are invited to submit them in writing to the Department of Natural Resources, Water Protection Program, P.O. Box 176, Jefferson City, Missouri 65102, ATTN: Peter Goode, Professional Engineer. Please include the permit number in all comment letters.

Comments should be confined to the issues relating to the proposed action and permit(s) and the effect on water quality. The MDNR may not consider as relevant comments or objections to a permit based on issues outside the authority of the Clean Water Commission, (see Curdt v. Mo. Clean Water Commission, 586 S.W.2d 58 Mo. App. 1979).

All comments must be postmarked by November 22, 2004 or received in our office by 5:00 p.m. on November 25, 2004. The requirement of a signed document makes it impossible to accept email comments for consideration at this time. Comments will be considered in the formulation of all final determinations regarding the applications. If response to this notice indicates significant public interest, a public meeting or hearing may be held after due notice for the purpose of receiving public comment on the proposed permit or determination. Public hearings and/or issuance of the permit will be conducted or processed according to 10 CSR 20-6.020.

Copies of all draft permits and other information including copies of applicable regulations are available for inspection and copying at DNR's website, http://www.dnr.gov.mo/wpscd/wpcp/homewpcp.htm , or at the Department of Natural Resources, Water Protection Program, 205 Jefferson Street, P.O. Box 176, Jefferson City, Missouri 65102, between the hours of 8:00 a.m. and 5:00 p.m., Monday through Friday.

Public Notice Date: October 22, 2004 Permit Number: MO-0119997 Southwest Regional Office	
FACILITY NAME AND ADDRESS	**NAME AND ADDRESS OF OWNER**
Branson West, South Aunt's Creek WWTF, Branson West, MO 65737	City of Branson West, 110 Silver Lady Lane, Branson West, MO 65737
RECEIVING STREAM & LEGAL DESCRIPTION	**TYPE OF DISCHARGE**
South Aunt's Creek, Sec. 15, T23N, R23W, Stone County	Domestic, reissue

STATE OF MISSOURI

DEPARTMENT OF NATURAL RESOURCES

MISSOURI CLEAN WATER COMMISSION

MISSOURI STATE OPERATING PERMIT

In compliance with the Missouri Clean Water Law, (Chapter 644 R.S. Mo. as amended, hereinafter, the Law), and the Federal Water Pollution Control Act (Public Law 92-500, 92nd Congress) as amended,

Permit No.	MO-0119997
Owner:	City of Branson West
Address:	110 Silver Lady Lane, Branson West, MO 65737
Continuing Authority:	Same as above
Address:	Same as above
Facility Name:	Branson West, South Aunt's Creek WWTF
Address:	Branson West, MO 65737
Legal Description:	N ½, SE ¼, SE ¼, Sec. 15, T23N, R23W, Stone County
Receiving Stream:	South Aunt's Creek (U)
First Classified Stream and ID:	Table Rock Lake (L2)(07313)
USGS Basin & Sub-watershed No.:	(11010002-070001)

is authorized to discharge from the facility described herein, in accordance with the effluent limitations and monitoring requirements as set forth herein:

FACILITY DESCRIPTION

Outfall #001 – POTW - SIC #4952
Extended aeration/UV disinfection/sludge is land applied.
Design population equivalent is 6,170.
Design flow is 740,000 gallons per day.
Actual flow is 130,000 gallons per day.
Design sludge production is 111 dry tons/year.

This permit authorizes only wastewater discharges under the Missouri Clean Water Law and the National Pollutant Discharge Elimination System; it does not apply to other regulated areas. This permit may be appealed in accordance with Section 644.051.6 of the Law.

Effective Date

Stephen M. Mahfood, Director, Department of Natural Resources
Executive Secretary, Clean Water Commission

Expiration Date

Jim Hull, Director of Staff, Clean Water Commission

A. INTERIM EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The interim effluent limitations shall become effective upon issuance and remain in effect until September 30, 2008. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	INTERIM EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #001						
Flow	MGD	*		*	once/day	24 hr.total
Biochemical Oxygen Demand$_5$**	mg/L		45		once/week	24 hr. comp
Total Suspended Solids**	mg/L		45		once/week	24 hr. comp
pH – Units	SU			***	once/week	grab
Total Phosphorus	mg/L	0		1.0	once/week	grab
Ammonia as N	mg/L				once/week	grab
(June 1– September 30)		3.1		1.6		
(October 1 May 31)		4.7		2.3		
Fecal Coliform****	#/100mL	1000		400	once/week	grab
Oil & Grease	mg/L	15		10	once/week	grab
Total Nitrogen	mg/L	*		*	once/month	grab
Nitrate + Nitrite Nitrogen	mg/L	*		*	once/month	grab

MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE _____. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

B. STANDARD CONDITIONS

IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED Parts I, II, & III STANDARD CONDITIONS DATED October 1, 1980 and August 15, 1994, AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

* Monitoring requirement only.
** This facility is required to meet a removal efficiency of 85% or more.
*** pH is measured in pH units and is not to be averaged. The pH is limited to the range of 6.0-9.0 pH units.
**** Final limitations and monitoring requirements for Fecal Coliform are applicable only during the recreational season from April 1 through October 31.

A. FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective on October 1, 2008, and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #001						
Flow	MGD	*		*	once/day	24 hr.total
Biochemical Oxygen Demand$_5$**	mg/L		45	30	once/week	24 hr. comp
Total Suspended Solids**	mg/L		45		once/week	24 hr. comp
pH – Units	SU	***		***	nce/week	grab
Total Phosphorus	mg/L	0.5		0.5	once/week	grab
Ammonia as N (June 1– September 30) (October 1 May 31)	mg/L	 3 4.		 1.6 2.3	once/week	grab
Fecal Coliform****	#/1	1000		400	once/week	grab
Oil & Grease	mg/L	15		10	once/week	grab
Total Nitrogen	mg/L	*		*	once/month	grab
Nitrate + Nitrite Nitrogen	mg/L	*		*	once/month	grab

MONITORING REPORTS SHALL BE SUBMITTED MONTHLY; THE FIRST REPORT IS DUE _____. THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

B. STANDARD CONDITIONS

IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED Parts I, II, & III STANDARD CONDITIONS DATED October 1, 1980 and August 15, 1994, AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

* Monitoring requirement only.
** This facility is required to meet a removal efficiency of 85% or more.
*** pH is measured in pH units and is not to be averaged. The pH is limited to the range of 6.0-9.0 pH units.
**** Final limitations and monitoring requirements for Fecal Coliform are applicable only during the recreational season from April 1 through October 31.

C. SPECIAL CONDITIONS

1. This permit may be reopened and modified, or alternatively revoked and reissued, to:
   (a) Comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a) (2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:
      (1) contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
      (2) controls any pollutant not limited in the permit.

C. SPECIAL CONDITIONS (continued)

(b) Incorporate new or modified effluent limitations or other conditions, if the result of a waste load allocation study, toxicity test or other information indicates changes are necessary to assure compliance with Missouri's Water Quality Standards.

(c) Incorporate new or modified effluent limitations or other conditions if, as the result of a watershed analysis, a Total Maximum Daily Load (TMDL) limitation is developed for the receiving waters which are currently included in Missouri's list of waters of the state not fully achieving the state's water quality standards, also called the 303(d) list.

The permit as modified or reissued under this paragraph shall also contain any other requirements of the Clean Water Act then applicable.

2. All outfalls must be clearly marked in the field.

3. Permittee will cease discharge by connection to areawide wastewater treatment system within 90 days of notice of its availability.

4. Changes in Discharges of Toxic Substances

The permittee shall notify the Director as soon as it knows or has reason to believe:

(a) That any activity has occurred or will occur which would result in the discharge of any toxic pollutant which is not limited in the permit if that pollutant may exceed the highest of the following "notification levels:"
   (1) One hundred micrograms per liter (100 µg/L);
   (2) Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/L) for 2,4-dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
   (3) Five (5) times the maximum concentration value reported for the pollutant in the permit application;
   (4) The level established in Part A of the permit by the Director.

(b) That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant, which was not reported in the permit application.

5. Report as no-discharge when a discharge does not occur during the report period.

6. Water Quality Standards

(a) Discharges to waters of the state shall not cause a violation of water quality standards rule under 10 CSR 20-7.031, including both specific and general criteria.

(b) General Criteria. The following general water quality criteria shall be applicable to all waters of the state at all times including mixing zones. No water contaminant, by itself or in combination with other substances, shall prevent the waters of the state from meeting the following conditions:
   (1) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses;
   (2) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses;
   (3) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses;
   (4) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life;

C. SPECIAL CONDITIONS (continued)

6. Water Quality Standards (continued)

(5) There shall be no significant human health hazard from incidental contact with the water;
(6) There shall be no acute toxicity to livestock or wildlife watering;
(7) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community;
(8) Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles or equipment and solid waste as defined in Missouri's Solid Waste Law, section 260.200, RSMo, except as the use of such materials is specifically permitted pursuant to section 260.200-260.247.

7. Sludge and Biosolids Use For Domestic Wastewater Treatment Facilities
(a) Permittee shall comply with the pollutant limitations, monitoring, reporting, and other requirements in accordance with the attached permit Standard Conditions.
(b) If sludge is not removed by a contract hauler, permittee is authorized to land apply biosolids. Permit Standard Conditions, Part III shall apply to the land application of biosolids. Permittee shall notify the department at least 180 days prior to the planned removal of biosolids. The department may require submittal of a biosolids management plan for department review and approval as determined appropriate on a case-by-case basis.

Missouri Department of Natural Resources
Water Protection Program
Water Pollution Control Branch
NPDES Permits & Engineering Section

Water Quality Review Sheet

Determination of Effluent Limits

Facility Information

FACILITY NAME: Branson West, South Aunts Creek WWTF

NPDES #: MO-0119997

FACILITY TYPE/DESCRIPTION: Extended aeration/UV disinfection/sludge is land applied; design flow = 0.74 MGD. Existing facility to be upgraded to add phosphorous removal.

ECOREGION: Ozark Highlands (Central Irregular Plains, Mississippi Alluvial Plains, Osage Plains, Ozark Highlands)

8-DIGIT HUC: 11010002

COUNTY: Stone

LEGAL DESCRIPTION: SE SE Sec.15, T23N, R23W

LATITUDE/LONGITUDE: +3641443/-09324080

WATER QUALITY HISTORY: Original Branson West Municipal WWTF MSOP (MO-0109894) was terminated on 6/25/99 when facility was reconfigured to serve as a lift station for the Branson West, South Aunts Creek WWTF. Current facility has had minor excursions from effluent limitations.

Outfall Characteristics

OUTFALL	DESIGN FLOW (CFS)	TREATMENT TYPE	RECEIVING WATERBODY	OTHER
001	1.15	Extended Aeration	South Aunts Creek	

Receiving Waterbody Information

WATERBODY	CLASS	7Q10(CFS)	*DESIGNATED USES	OTHER CHARACTERISTICS
South Aunts Creek	U	0.0	N/A	
Table Rock Lake	L2	43,100 acres	LWW, AQL, WBC, BTG	WBID: 7313

*Cool Water Fishery (CLF), Cold Water Fishery (CDF), Irrigation (IRR), Industrial (IND), Boating & Canoeing (BTG), Drinking Water Supply (DWS), Whole Body Contact Recreation (WBC), Protection of Warmwater Aquatic Life and Human Health (AQL), Livestock & Wildlife Watering (LWW)

COMMENTS: Table Rock Lake (Reservoir) is on the 2002 303(d) list for nutrients from point and non-point sources. Updated water quality review sheet refines ammonia as nitrogen effluent limitations and adds interim and final phosphorous limitations per 10 CSR 20-7.015(3)(G).

MIXING CONSIDERATIONS

Mixing Zone (MZ). South Aunts Creek is unclassified, therefore no mixing zone is allowed. Acute criteria apply per 10 CSR 20-7.031(3)(I)1. and chronic criteria must be met where South Aunts Creek enters Table Rock Lake.

Zone of Initial Dilution (ZID). Not allowed due to unclassified receiving stream. Acute criteria must be met end-of-pipe.

Permit Limits And Information

TMDL Watershed: (Y or N) [Y] W.L.A. Study Conducted: (Y or N) [N] Disinfection Required: (Y or N) [Y] Disinfection Waiver: (Y, N, NA) [NA]

OUTFALL #001

Wet Test (Y or N): [Y] Frequency: Once/Year A.E.C. 100% Limit: No significant mortality

PARAMETER	Units	Maximum Daily Limit	Weekly Average Limit	Average Monthly Limit	Monitoring Frequency
Flow		*		*	Daily
Biochemical Oxygen Demand (BOD_5)	mg/L		45	30	Once/week
Total Suspended Solids	mg/L		45	30	Once/week
pH	SU	6 - 9		6 - 9	Once/week
Fecal Coliform	Note 1	1000		400	Once/week
Oil & Grease	mg/L	15		10	Once/week
Ammonia as N (May 1 - Oct 31)	mg/L	3.1		1.6	Once/week
Ammonia as N (Nov 1 - Apr 30)	mg/L	4.7		2.3	Once/week
Total Phosphorous - Interim	mg/L			1.0	Once/week
Total Phosphorous - Final	mg/L			0.5	Once/week
Total Nitrogen	mg/L	*		*	Once/month
Nitrate + Nitrite Nitrogen	mg/L	*		*	Once/month

Note 1 - Colonies/100 mL, * - Monitoring Requirement Only

Receiving Water Monitoring Requirements

No receiving water monitoring requirements are recommended at this time. However, future in-stream or lake monitoring may be required due to the listing of Table Rock Lake for nutrients on the Missouri 2002 303(d) list.

Derivation and Discussion of Limits

Wasteload allocations were calculated using water quality criteria or water quality model results and the dilution equation below:

$$C = \frac{(C_s * Q_s) + (C_e * Q_e)}{(Q_e + Q_s)}$$ (EPA/505/2-90-001, Section 4.5.5)

Where C = downstream concentration
C_s = upstream concentration
Q_s = upstream flow (cfs)
C_e = effluent concentration
Q_e = effluent flow (cfs)

Chronic wasteload allocations were determined using applicable chronic water quality criteria (CCC: criteria continuous concentration) and stream volume of flow at the edge of the mixing zone (MZ). Acute wasteload allocations were determined using applicable acute water quality criteria (CMC: criteria maximum concentration) and stream volume of flow at the edge of the zone of initial dilution (ZID).

Water quality based maximum daily and average monthly effluent limitations were calculated using methods and procedures outlined in USEPA's "Technical Support Document For Water Quality-based Toxics Control" (EPA/505/2-90-001).

Outfall #001 – Main Facility Outfall

- **Biochemical Oxygen Demand (BOD_5)**. Same as current permit; 30 mg/L monthly average, 45 mg/L weekly average [10 CSR 20-7.015(8)(B)1.]

- **Total Suspended Solids (TSS)**. Same as current permit; 30 mg/L monthly average, 45 mg/L weekly average [10 CSR 20-7.015(8)(B)1.]

- **pH**. Same as current permit; pH shall be maintained in the range from six to nine (6 – 9) standard units [10 CSR 20-7.015(8)(B)2.]

- **Fecal Coliform**. Same as current permit; 400 colonies/100 mL monthly average, 1000 colonies/100 mL daily maximum during the recreational season (April 1 – October 31) [10 CSR 20-7.015(8)(B)4.A.]

- **Oil & Grease**. Conventional pollutant, effluent limitation for protection of aquatic life; 10 mg/L monthly average, 15 mg/L daily maximum.

- **Ammonia as Nitrogen**. Ammonia criteria for waters designated as general warm-water fisheries apply [10 CSR 20-7.031, Table B]. Background ammonia as nitrogen for South Aunts Creek = 0.01 mg/L.

Season	Temp (°C)	pH (SU)	Total Ammonia CCC (mg/L)	Total Ammonia CMC (mg/L)
Summer	26	7.8	1.2	14.0
Winter	6	7.8	2.1	16.4

Summer: May 1 – October 31, Winter: November 1 – April 30

$C_e = ((Q_e + Q_s)C - (Q_s * C_s))/Q_e$

Summer

Ammonia as Nitrogen CCC = 1.2/1.2 = 1.0 mg/L
Ammonia as Nitrogen CMC = 14.0/1.2 = 11.7 mg/L

Chronic WLA: $C_e = ((1.15 + 0.0)1.0 - (0.0 * 0.01))/1.15$
C_e = 1.0 mg/L

Acute WLA: $C_e = ((1.15 + 0.0)11.7 - (0.0 * 0.01))/1.15$
$C_e = 11.7$ mg/L

Previous WQRS allowed for ammonia degradation (0.5 mg/L per mile) in the unclassified stream. The main facility outfall is approximately 2 miles from Table Rock Lake, therefore an allowance of 1.0 mg/L ammonia as nitrogen (2 miles * 0.5 mg/L per mile = 1.0 mg/L) will be allowed. Ammonia as nitrogen WLA = 1.0 mg/L + 1.0 mg/L = 2.0 mg/L

LTA_c = 2.0 mg/L (0.527) = 1.0 [CV = 0.6, 99th Percentile]

MDL = 1.0 * 3.11 = 3.1 mg/L [CV = 0.6, 99th Percentile]
AML = 1.0 * 1.55 = 1.6 mg/L [CV = 0.6, 95th Percentile, n = 4]

Winter

Ammonia as Nitrogen CCC = 2.1/1.2 = 1.8 mg/L
Ammonia as Nitrogen CMC = 16.4/1.2 = 13.7 mg/L

Chronic WLA: $C_e = ((1.15 + 0.0)1.8 - (0.0 * 0.01))/1.15$
C_e = 1.8 mg/L

Acute WLA: $C_e = ((1.15 + 0.0)13.7 - (0.0 * 0.01))/1.15$
$C_e = 13.7$ mg/L

Previous WQRS allowed for ammonia degradation (0.5 mg/L per mile) in the unclassified stream. The main facility outfall is approximately 2 miles from Table Rock Lake, therefore an allowance of 1.0 mg/L ammonia as nitrogen (2 miles * 0.5 mg/L per mile = 1.0 mg/L) will be allowed. Ammonia as nitrogen WLA = 1.8 mg/L + 1.0 mg/L = 2.8 mg/L

LTA_c = 2.8 mg/L (0.527) = 1.5 [CV = 0.6, 99th Percentile]

MDL = 1.5 * 3.11 = 4.7 mg/L [CV = 0.6, 99th Percentile]
AML = 1.5 * 1.55 = 2.3 mg/L [CV = 0.6, 95th Percentile, n = 4]

Season	Maximum Daily Limit (mg/L)	Average Monthly Limit (mg/L)
Summer	3.1	1.6
Winter	4.7	2.3

- **Total Phosphorous**. Interim total phosphorous effluent limitation of 1.0 mg/L as a monthly average; final total phosphorous effluent limitation of 0.5 mg/L as a monthly average effective November 30, 2007 [10 CSR 20-7.015(3)(G).]

Reviewer: John Hoke
Date: 10/13/04
Unit Chief: Richard J. Laux

WATER QUALITY REVIEW SHEET
Determination of Effluent Limits

Facility Information

Monitoring and effluent limits contained within this document have been developed in accordance with EPA guidelines using the best available data and are believed to be consistent with Missouri's Water Quality Standards and Effluent Regulations. If additional water quality data or anecdotal information are available that may affect the recommended monitoring and effluent limits, please forward these data and information to the author.